

REMARKS

Claims 1-58 are all the claims pending in the application.

Claim Rejections - 35 U.S.C. § 101

Claims 57 and 58 are rejected under 35 U.S.C. § 101. In view of the amendment to the Specification made by this Amendment, Applicants respectfully submit that the claims comply with the requirements of 35 U.S.C. § 101. Accordingly, withdrawal of the 35 U.S.C. § 101 rejection is respectfully requested.

Claim Rejections - 35 U.S.C. § 112

Claims 1, 12, and 57 are rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the enablement requirement. In view of the amendment to claims 1, 12, and 57, Applicants respectfully submit that claims 1, 12, and 57 comply with the requirements of 35 U.S.C. § 112.

Claim Rejections - 35 U.S.C. § 103

Claims 20-23, 29, 30, 32, 39-41, 47, 48, and 50 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 5,502,492 to Jung in view of U.S. Patent No. 4,944,023 to Imao *et al.* ("Imao").

Claims 24, 28, 31, 42, 46, and 49 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Jung in view of Imao, and further in view of U.S. Patent No. 5,903,669 to Hirabayashi.

Claims 1-19, 25-27, 33-38, 43-45, and 51-58 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Jung in view of Imao and Hirabayashi, and further in view of U.S. Patent No. 5,796,434 to Lempel.

For *at least* the following reasons, Applicants respectfully traverse the rejection.

Claims 20-23, 29, 30, 32, 39-41, 47, 48, and 50

Applicants submit that claim 20 is patentable over the proposed combination of Jung and Imao. For example, claim 20 relates to a method of determining a block mode. The method comprises, *inter alia*, performing motion estimation on an input video data block in a mode of first sub blocks thereof using a predetermined reference picture and a predetermined measure function for motion estimation, and obtaining values of the measure function and motion vectors for the respective first sub blocks. It is determined whether there is a need to perform motion estimation on the video data block in a mode of second sub blocks thereof which are smaller than the mode of the first sub blocks. When there is no need to perform motion estimation on the video data block in the mode of the second sub blocks, a block mode of the video data block is determined depending on whether motion vectors of the first sub blocks are similar.

It is asserted in the Office Action that Jung's method discloses that "[i]f the number of subblocks having an identical displacement is larger than a certain threshold, preferably 30% of the subblocks in the panning block, then the motion vector for the current panning block is the overall panning block motion vector determined from panning vector 30"¹. Office Action at page 5. This allegedly discloses determining a block mode of the video data block depending on whether motion vectors of the first sub blocks are similar. Applicants respectfully submit that the teachings of Jung are being misinterpreted in the Office Action.

¹ In the Office Action, the Examiner states "motion vector for the current panning block", but it appears that the Examiner intended to state motion vector of the current subblock.

For instance, as the Examiner correctly acknowledges, in Jung the panning vector itself is determined based on the motion vectors of the subblocks within the subject panning block (Jung, col. 5, lines 16-29). However, the block mode in Jung is not determined depending on whether motion vectors of the subblocks are similar. Rather, the block mode in Jung, which is the output of the motion vector detecting apparatus, is based on a signal which represents the difference between the current frame block and the motion-compensated previous frame block (Jung, col. 5, lines 30-51).

Specifically, in the aforementioned portion of Jung, it is explicitly disclosed that when the mean absolute value of the difference signal is greater than the predetermined reference value, the comparator 48 allows the multiplexer 28 to select the subblock motion vector as an output of the motion vector detecting apparatus. On the other hand, when the mean absolute value of the difference signal is smaller than the reference value, the comparator 48 allows the multiplexer 28 to select the panning vector as the output of the motion vector detecting apparatus. As such, the selection of the output (either the motion vector of the subblock, or the motion vector of the panning block) is based on the difference between the current frame block and the motion-compensated previous frame block, and is not selected based on whether motion vectors of the subblocks are similar as required by claim 20.

Imao is only relied on to teach recursively dividing image blocks into subblocks. See Office Action at page 6. Therefore, Jung alone, or in combination with Imao, does not teach or suggest the above-noted features of claim 20. Accordingly, withdrawal of the 35 U.S.C. § 103(a) rejection of claim 20 is respectfully requested.

Claim 39 recites features similar to those discussed above with respect to claim 20.

Therefore, claim 39 is patentable for *at least* reasons similar to those given above with respect to claim 20.

Claims 21-23, 29, 30, 32, 40, 41, 47, 48, and 50 are patentable *at least* by virtue of their dependency.

Claims 24, 28, 31, 42, 46, and 49

Claims 24, 28, 31, 42, 46, and 49 depend from claims 20 or 39. Since Hirabayashi does not cure the deficient teachings of Jung and Imao with respect to claims 20 and 39, claims 24, 28, 31, 42, 46, and 49 are patentable *at least* by virtue of their dependency.

Claims 1-19, 25-27, 33-38, 43-45, and 51-58

Claim 1 recites that when there are two adjacent first sub blocks using the same reference picture, a reference picture and a block mode are determined depending on whether two motion vectors are similar. The Examiner alleges that “the method of claim 1 is considered equivalent to the method of claims 20 and 24-26 for a bidirectional picture”. Office Action at page 12.

As an initial matter, Applicants do not acquiesce to this interpretation of the claim. Moreover, it has been shown above that Jung does not disclose determining a block mode depending on whether two motion vectors are similar as recited in claim 1. Rather, the output (block mode) of Jung’s motion vector detecting apparatus is based on a difference between the current frame block and the motion-compensated previous frame block. Accordingly, claim 1 is patentable over the proposed combination of Jung, Imao, Hirabayashi, and Lempel.

Claims 12, 57, and 58 recite features similar to those discussed above with respect to claims 1 and 20. Therefore, claims 12, 57, and 58 are patentable for *at least* reasons similar to those given above with respect to claims 1 and 20.

Claims 2-11, 13-19, 25-27, 33-38, 43-45, and 51-56 are patentable *at least* by virtue of their dependency.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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